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Central Intelligence Agency

Washington D.C. 20505

19 MAY 1986

OIT #0330-86

Mr. W. C. Lowe
IBM Corporation
Building 236
P.O. Box 1328
Boca Raton, Florida 33432

Dear Mr. Lowe:

Last December, you and your colleagues kindly met with me and a group of senior Agency executives to discuss IBM's plans for the 3270 PC family. On 10-12 February, a group of our technical officers had the opportunity to meet and engage in a spirited and fruitful technical exchange with Entry Systems Division personnel in Boca Raton. They received, under non-disclosure agreements, excellent presentations on IBM's future directions in the intelligent workstation arena. Your personnel discussed their plans for the evolution of the Personal Computer. Overall, these briefings indicated a convergence of the AT and 3270 AT directions into a single intelligent workstation product family. This is a direction we fully support.

On the basis of what we have learned, however, there is one area of keen interest to this Agency that IBM does not plan to address. This area is "high-end" office automation. We define this as a system designed to enhance the productivity of a professional whose work products are complex documents. I have enclosed a summary of a typical work scenario for an intelligence analyst. To automate such work in our environment requires an intelligent workstation that can attach to our host systems--large, primarily VM systems, using 3270 protocols. This workstation must be able to create, display, print, and communicate compound documents combining text, high-quality graphics, and pictorial information; and it must be able to display multiple documents simultaneously.

High-end automation requires both software and hardware that are not included in the PC plans disclosed to us. Software to handle multiple-object documents and multiple documents in a "desktop" presentation appears absent, along with formats and architectures for interchange of such complex objects. We require a larger range of display options--up to 19" diagonal screens with resolutions in the 1200 x 1000 pixel range. Color and gray scales should also be available. This size is needed for handling multiple document displays in legible type.

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While ESD is concerned with hardware almost in this range, your orientation appears to be in the graphics, CAD/CAM arena. At the time of our meetings, the graphics direction to be taken by ESD was still being debated and not disclosed, but it is clear from all indications that the trend is toward continuing to view graphics as a discrete CAD/CAM-like market rather than as intimately relating to documents. This is reinforced by the continuing idea that the 3270 AT requires special hardware to do any sort of host graphics, neglecting the possibilities for doing some graphics in the basic unit itself. It is not clear that the trend to special graphics units and the desire for a family of integrated office automation systems to handle text, graphics, and pictorial information are mutually compatible.

I hope it is clear from our visits and other discussions that our interest in these areas is very active. Disclosures on directions in the graphics arena would be of great interest, as are any indications of directions in office automation utilizing intelligent workstations. The particular interest in high-end document production is an important one in our planning. Equipment that does this kind of work is available from various sources, although without the required full integration into the IBM architecture. We note the lack of an IBM entry in this arena to set standards. If capabilities such as those described were available in a member of the 3270 AT family or even the standard AT, it would significantly enhance the attractiveness of that family and related IBM products.

I hope this discussion helps to clarify some areas of mutual interest. We are encouraged by planned convergence of the IBM AT and the 3270 AT. This directly addresses a major area of concern in large user organizations such as CIA. I want to thank you and your obviously very capable and dedicated personnel for sharing their plans with us. We appreciate the opportunity to learn about Entry Systems Division and thank you for the courtesy and hospitality extended to us. The dialogue to date has been extremely valuable, and I hope it will continue.

Sincerely,

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Executive Director

Enclosure:
As stated

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WORK SCENARIO FOR AN INTELLIGENCE ANALYST

Intelligence analysis spans virtually all disciplines from largely qualitative political assessments to the mostly quantitative analysis of scientific and technical subjects. Analysts' data processing needs likewise range from word processing and complex document creation to large-scale physical simulation and modeling. The common finished product is words -- lengthy reports, short memoranda or briefings. The most common format today for the intelligence product is paper, but the Agency is exploring the possibility of presenting analysis in automated form as well.

The analytical process itself involved synthesizing large amounts of information from numerous sources in a variety of formats -- text, numbers and equations, maps, graphics and photographs. During the process, analysts construct, combine and communicate text, graphics, pictures and spreadsheet data (either in tabular form or as graphics) in compound documents. Thus the "desktop" user interface has strong appeal -- analysts have reacted favorably both to commercial products that use such a metaphor as well as internal Agency prototypes. The key ingredients in the "desktop" interface include:

1. A high-resolution display large enough for two full pages of text side-by-side. Our experience is that 1000 dots horizontally is the minimum resolution required. A screen size of 15-inch is the minimum size required to display two pages of text in a font large enough to read easily; a 19-inch screen is preferable.

2. The ability to display parts of several different documents on the screen at once with separate scrolling for each document.

3. The ability to cut and paste between the different documents displayed.

Intelligence analysis requires quite sophisticated graphics. Analytical products often include maps overlayed with symbols, photographs, diagrams, charts or other forms of graphics. The same workstation the analyst uses to produce text should also be able to store, transmit and manipulate all forms of graphics and pictorial information as well. Some production tools are also used in the analytical process. Graphics, for example, help analysts understand many problems through illustration or by precise measurement, and spreadsheet software is useful for economists or any analysts who require mathematical, sorting or counting operations or tabular data. Obviously, analysts also need the ability to directly generate graphics from spreadsheets and incorporate both the table and graph into textual documents.

Although intelligence analysts require sophisticated office automation tools for production, their need for advanced analytical

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tools is even more important. Analysts would like to be able to make use of the techniques being developed by the Artificial Intelligence community as these become available -- expert systems, natural language understanding, and pattern recognition, for example. Any analyst workstation should be able to run such software using the same user-friendly, desktop interface that accesses the production tools.

Because many of the analytical tools needed will never be available "off-the-shelf," any advanced analyst workstation should be amenable to personalization and end-user programming so that those analysts capable of doing so can develop their own analytical programs. Finally, the workstation software should have an open architecture with powerful applications development and programmer productivity tools that will allow analysts to develop their own applications as the need arises. Intelligence analysis is a creative process. A hardened and inflexible group of tools will encourage analysts to do only what the tools permit, while a flexible and creative atmosphere will encourage analysts to probe for new insights and deeper understanding.

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